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EXAMINER	
WONG, ALAN	

ART UNIT	PAPER NUMBER
2817	

NOTIFICATION DATE	DELIVERY MODE
03/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/544,136	DETLEFSEN ET AL.	
	Examiner	Art Unit	
	ALAN WONG	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-32 and 34-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-32 and 34-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 June 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The indicated allowability of claim 39, 40, are 42 is withdrawn. Rejections as follow.

Claim Rejections - 35 USC § 112

2. Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. With respect to claim 40, the last paragraph first part has the two end-positioned transducers between the first and second coupler transducers, effectively making the coupler transducers separated (by end-positioned transducers) which contradicts with the second part about the first and second coupler transducers being arrange next to each other. Dating back to the claims filed on 7/29/2005, when the word "between" is in paragraph, and based on Fig. 10, Examiner reads the first part as --at least two end-positioned transducers **between** the first coupler transducer and the second coupler transducer **are disposed**--.

4. Also for claim 40, the relationship between "an end-positioned transducer" (2nd to last paragraph) and "at least two end-positioned transducers" are not well related. The language claimed suggests there are **three** transducers at minimum. Please clarify.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 39 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Baier et al. DE10007178 of record (IDS 7/29/2005).

7. With respect to claim 39 and 40, Baier et al. disclose an apparatus (Fig. 8) comprising: inherently a piezoelectric substrate (inherent to SAW resonators/filters, which are in Baier) comprising: a signal line comprising a first ("out" terminals) and second ("in" terminals) electrical port; a first partial filter (VS, the one connected to "in" terminals; "partial filter" is read as a label only); a second partial filter (DMS1, the one connected to "out" terminals) connected in series with the first partial filter (VS), the first (VS) and second (DMS1) being between the first ("out" terminals) and the second ("in" terminals) electrical ports; wherein: the first partial filter (VS) comprises a first and second serial transducers (the transducers connected to the "in" terminals) located in series branches of the signal line, the first and second serial transducer being located in an acoustic path and acoustically coupled with one another (inherently shown by Fig. 8), and the second partial filter (DMS1) comprises a first and second coupler transducers (the middle two transducers of DMS1, note that DMS1 has 4 transducers with the middle two electrically connected to each other) and end-positioned transducer (the one that connected to "out" terminals) that are located in DMS path, the end-position transducer being positioned at an end of the signal line (at "out" terminals).

Further for claim 39, Baier et al. disclose a first signal conducting terminal of the second electrical port ("in+") is electrically connected to the first serial transducer; a second signal conducting terminal of the second electrical port ("in-") is electrically

connected to the second serial transducer; the end-position transducer is arranged along the signal line that is electrically connected to the first electrical port (the transducer that connected with "out" terminals); the first coupler transducer is electrically connected in series with the first serial transducer (with the top connecting line in the middle that links VS and DMS1); and the second coupler transducer is electrically connected in series with the second serial transducer (with the bottom connecting line in the middle that links VS and DMS1). (See Fig. 8).

Further for claim 40, Baier et al. disclose the second partial filter (DMS1) comprises at least two end-positioned transducers (the two transducers connected with "out" terminals), between **which** the first and second coupler transducers **are disposed**, the first and second coupler transducers being electrically connected in series (the right-side IDT connected them in series) and arranged next to each other (see Fig. 8).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 21-32, 34-38, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mita et al. JP2001-292050 in view of Bauer et al. WO03/081773, all of record. Please refer back to the office action filed on 9/19/2008 from page 2 to page 8 for the detail of the rejection.

10. Claim 21-24, 26, 28, 29, 31, 32, 34, 35, 37, 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mita et al. JP2001-292050 of record, in view of Davenport US5486800.

11. With respect to claim 21, Mita et al. disclose an apparatus (Fig. 11) comprising: a piezoelectric substrate (130) comprising: a signal line comprising a first electrical port (136c) and a second electrical port (136a,b); a first partial filter (137, ladder filter with two series resonators and a parallel resonator; "partial filter" is read as a name only); a second partial filter (135) connected in series with the first partial filter (137), the first partial filter (137) and the second partial filter (135) being between the first (136c) and the second (136a,b) electrical ports; the first partial filter (137) comprises a first serial transducer (the first resonator reached from port 136c) and a second serial transducer (the second resonator reached from port 136c) located in series branches of the signal line; and the first and second serial transducer being electrically connected in series in the signal line (trace from port 136c to first and second serial transducer); and the second partial filter (134) comprises a first coupler transducer (132) and an end-positioned transducer (131) that are located in a 3-IDT structure (131,132,133), the end-positioned transducer (131) being positioned at an end of the signal line (131 directly connects with end terminal 136a,b, thus end of signal line); the 3-IDT structure (131, 132, 133) inherently is constructed in a DMS structure path as the 3-IDT structure is well known recognized DMS structure (e.g. US 6,504,454 Col. 1 line 34-35 stated 3 IDTs to make a double mode SAW (DMS) filter).

Mita et al. do not disclose explicitly the first serial transducer and the second serial transducer being located in an acoustic path and acoustically coupled with one another.

Davenport discloses a two-series resonator and a parallel resonator ladder filter (e.g. Fig. 3, 4) with a first (302) and a second (304) serial transducer located in series branches of signal line (node 1 to 2), and are located in an acoustic path and acoustically coupled with one another (e.g. Fig 3, 4), and the first (302) and second (304) serial transducer being electrically connected in series in the signal line (node 1 to 2).

At the time of the invention, it would have been obvious to use Davenport's ladder filter of two series resonator and a parallel resonator (as the first partial filter) in place of Mita et al.'s ladder filter (Mita: 137) of two series resonator and a parallel resonator. The suggestion to do so is to use Davenport's ladder filter is that Davenport's ladder filter allows same beam width and pitch making them easily manufacturable (Davenport: Col. 3 line 23-26) or having the advantage of not having to stagger the transducers to isolate them (Davenport: Col. 3 line 32-37).

12. With respect to claim 22, as consequence of the combination, the combination discloses the first electrical port (Mita: 136c) comprises an asymmetrical (i.e. unbalance) electrical port having a signal-conducting terminal (Mita: 136c).

13. With respect to claim 24, the combination discloses the second electrical port (Mita: 136a,b) comprises a symmetrical electrical port having multiple signal-conducting terminals (Mita: 136a,b).

14. With respect to claim 26, as consequence of the combination, the combination obviously result in each of the acoustic path and the DMS path are bounded on both sides by reflectors (Mita: 134, and the ladder filter 137 with reflectors; Davenport: Col. 1 line 66-67, Fig. 1, 3, 6, 8: while not shown in Fig. 3, Davenport suggested SAW ladder filters can be designed with and without reflectors and other embodiments also show design with reflectors when converting a conventional design, Fig. 1, into the invention, Fig. 6 or 8).

15. With respect to claim 28, as consequence of the combination, the combination discloses the second partial filter (Mita: 135) comprises a second coupler transducer (Mita: 133).

16. With respect to claim 29, as consequence of the combination, the combination discloses the first (Mita: 132) and second (Mita: 133) coupler transducers and the end-positioned transducers (Mita: 131) located in the DMS path are arranged substantially alternately (arranged from left to right as coupler transducer 132, end-positioned transducer 131, coupler transducer 133; thus alternately between coupler transducer and end-position transducer).

17. With respect to claim 31, as consequence of the combination, the combination obviously result in the first electrical port (Mita: 136c) is electrically connected to the first partial filter (Mita: ladder filter 137, which is replaced by Davenport's Fig. 3); the second electrical port (Mita: 136a,b) is electrically connected to the end-positioned transducer (Mita: 131); and the first coupler transducer (Mita: 132) is electrically connected in series with at least the first or second serial transducer (Mita's coupler transducer 132 is

coupled to the ladder filter, which is Davenport's Fig. 3 in the combination, and since the first (Davenport: 302) or second (Davenport: 304) serial transducers are in the series branch and connect to the input/output terminals, thus at least one would be in electrically series with Mita's coupler transducer 132 in the combination).

18. With respect to claim 32, as consequence of the combination, the combination obviously result in the first partial filter (Mita: 137, replaced by Davenport's Fig. 3) comprises an additional acoustic path (Davenport: 310) that is electrically connected with the first electrical port (through Davenport's 302/304), the additional acoustic path comprising a parallel transducer (Davenport: 310) that is electrically connected between the signal line and ground (see Davenport: Fig. 3).

19. With respect to claim 34, as consequence of the combination, the combination discloses the end-positioned transducer (Mita: 131) comprises at least two partial transducers (Mita: 131a,b) that are electrically connected with one another (as shown in the drawing with a bar in between) and electrically connected in series between signal conducting terminals of the second electrical port (Mita: 136a,b).

20. With respect to claim 35, as consequence of the combination, the combination obviously result in a signal conducting terminal of the first electrical port (Mita: 136c, which would correspond to Davenport's 302/304 in the combination) is electrically connected to at least one of the first (Davenport: 302) and second (Davenport: 304) serial transducer.

21. With respect to claim 37, as consequence of the combination, the combination discloses the second partial filter (Mita: 135) further comprises a second coupler transducer (Mita: 133).

22. With respect to claim 38, as consequence of the combination, the combination discloses the end-positioned transducer (Mita: 131) is between the first (Mita: 132) and second (Mita: 133) coupler transducers.

23. Alternately, with respect to claim 21, Mita et al. discloses an apparatus (Fig. 11) comprising: first electrical port (136a,b), second electrical port (136c), and the other claimed elements as disclosed above. Mita et al. do not disclose explicitly the first and second serial transducer being located in an acoustic path and acoustically coupled with one another. Davenport discloses a two-series and a parallel resonator as claimed detailed above. At the time of the invention, it would have been obvious to use Davenport's ladder filter in place of Mita et al.'s ladder filter as suggested above (see discussion on claim 21 above).

24. With respect to claim 23, as consequence of the combination, the combination under the alternative view with first electrical port as port 136a,b (from Mita) and a second electrical port as port 136c (from Mita), thereby having the second electrical port comprises an asymmetrical electrical port having a signal-conducting terminal (Mita: 136b).

25. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mita et al. JP2001-292050 of record, in view of Davenport US5486800, and further in view of Ehara et al. US6377140.

26. With respect to claim 27, the Mita/Davenport combination does not explicitly disclose one or more additional serial transducers in the acoustic path and in a series branch and being electrically connected in series with the first coupler transducer.

Ehara et al. disclose ladder filter (Fig. 1) and that addition stage can be added (Col. 1 line 62-65).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to add addition transducer (stage) to Mita/Davenport combination for the ladder filter as to achieve higher attenuation (Ehara: Col. 1 line 62-65) and having the addition transducer in the acoustic path is obvious as Davenport shows in another embodiment (Fig. 6) that additional transducer can be in acoustic series as well.

27. Claim 42 rejected under 35 U.S.C. 103(a) as being unpatentable over Strauss et al. US 6,081,172 in view of Baier DE10007178 of record (IDS 7/29/2005).

Note that US2003/0174029 would be use as a translation for DE10007178 only.

28. With respect to claim 42, Strauss et al. disclose an apparatus (Fig. 5) comprising: inherently a piezoelectric substrate (Col. 2 line 43-44, Col. 3 line 1-2, inherent to SAW resonators/filters) comprising: a signal line comprising a first (INPUT) and second (OUTPUT) electrical port; a first partial filter (RES1a,b; "partial filter" is read as a name only); a second partial filter (the single track filter at the top) electrically connected in

series with the first partial filter (RES1a,b), the first and second partial filters being between the first (INPUT) and second (OUTPUT) electrical ports; wherein: the first partial filter (RES1a,b) comprises a first (RES1a) and second (RES1b) serial transducers in series branches of the signal line; the second partial filter comprises a first coupler (IDT4) and an end-positioned transducer (IDT3) that are in DMS path (the 3-IDT structure, IDT2-IDT4, is well known recognized DMS structure (e.g. US 6,504,454 Col. 1 line 34-35 stated 3 IDTs to make a double mode SAW (DMS) filter), the end-positioned transducer (IDT3) being positioned at an end of the signal line; and the second electrical port (OUTPUT) is connected to an additional path (RES2a,b) comprising a first (RES2a) and second (RES2b) transducer and bounded by reflectors (see Fig. 5), a first signal conducting terminal of the second electrical port (the right sided OUTPUT) being electrically connected to the first transducer (RES2a); and a second signal conducting terminal of the second electrical port (the left sided OUTPUT) being electrically connected to the second transducer (RES2b).

Strauss et al. do not disclose the first (RES1a) and second (RES1b) serial transducers being in an acoustic path and acoustically coupled with one another; and the first (RES2a) and second (RES2b) being in an acoustic path and acoustically coupled with one another (note that Fig. 7 shows schematic of RES resonators/transducers).

Baier et al. disclose a four-pole reactance element (Fig. 2) with two transducer (T1, T2) being in an acoustic path and acoustically coupled with one another; and a

parallel element with two transducers (TS1, TS2) in series and are being in an acoustic path and acoustically coupled with one another.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use Baier et al.'s four-pole reactance element (Baier: Fig. 2) in place of Strauss et al.'s serial transducers (Strauss: RES1a,b) and use Baier et al.'s parallel branch element (Baier: Fig. 4) in place of Strauss et al.'s first and second transducer (Strauss: RES2a,b). Since Strauss et al.'s serial transducers (Strauss: RES1a,b shown schematically on Fig. 7) are essentially the same as Baier et al.'s four-pole reactance shown on Fig. 1 (Baier) and Strauss et al.'s first and second transducers (Strauss: RES2a,b schematically shown on Fig. 7) are essentially the same as Baier et al.'s parallel element shown on Fig. 3 (Baier), thus they can be replaced by Baier et al.'s four-pole reactance element (Fig. 2) and parallel element (Fig. 4) because Baier et al.'s Fig. 2 and Fig. 4 are art recognized alternative for Fig. 1 and Fig. 3 respectively (suggested by Baier's claim 1, 9, 10: both Fig. 1 and Fig. 2 are called four pole reactance element VS and both Fig. 3 and Fig. 4 are called reactance element RP) that achieve similar end results as well known to one of ordinary skill in the art.

Response to Arguments

29. Applicant's arguments filed 12/18/2008 have been fully considered but they are not persuasive. While examiner agrees with applicants that International Publication WO03/081773 does not qualify as prior art under 35 USC 102(e), this document's publication on 10/2/2003 does qualify this document as prior art under 35 USC 102(a) over the effective US filing date of 12/16/2003. Application's priority date of 2/4/2003

would pre-date the reference **but only if certified English translation of the foreign priority document is filed**. Currently no translation of the foreign priority document DE10304470.1 has been filed and therefore this rejection stands.

30. Examiner, however, also make a new rejection with other references therefore this action would be non-final.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALAN WONG whose telephone number is (571)272-3238. The examiner can normally be reached on Mon-Thurs 9:30am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/BENNY LEE/
PRIMARY EXAMINER
ART UNIT 2817

AW